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Inflation and Adjustment of Relative Prices in Georgia

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Abstract

The paper focuses on the dynamics of relative prices of goods and services in Georgia in the period of relative macroeconomic stabilization i.e., in years 1996–2001. Structure of Georgian consumer price index (CPI) is described in details and an analysis of the dynamics of relative prices is presented. It is shown that inflation is positively correlated with the variability of relative prices as measured by the standard deviation of the distribution of prices and also with the third moment (skewness) of the overall distribution of prices. Consequently, the efforts to minimize relative price variability should be considered an important part of anti-inflationary policy (the main recommendation for conducting anti-inflationary policy should include frequent increases of administratively regulated prices slightly in excess of overall inflation so that upward adjustments can take place without inducing large price variability). Moreover, based on the examination of basic 8 groups of goods and services and 56 subgroups included into basket used for CPI computation, it is shown that in the period under study the general price level increased mainly due to the increase in prices of goods with administrative regulated prices (except "alcoholic beverages"). In contrary, free market prices for food and beverages (except "fruits and vegetables") and other goods and services (except "personal care and effects") increased much less than the general price level in the country, i.e., relatively decreased.

1. Introduction

Inflation is one of the key aspects of macroeconomic instability in most of the transition countries, as it has a strong influence on many economic parameters (state budget, exchange rate, interest rate, wages, level of poverty, etc.). Moreover, high inflation undermines general trust to political and economic system in the country. At the same time inflation is a part of everyday lives, and it is one of the most popular economic terms.

There exists a number of different definitions of inflation. The most popular and the most widely used is Friedman's definition of inflation, according to which it reflects the continuous growth of the general level of prices in the country.

Since inflation always causes costs of different kind, increase in the price level is never considered as desirable. In economic literature costs of inflation are divided into two broad categories: the costs of fully-anticipated and unanticipated inflation.[1] The costs of a fully-anticipated inflation include: (i) the cost of economizing on real money balances (so-called *shoe-leather effects*); (ii) the cost of operating a less-than-perfectly indexed tax system; (iii) the cost of front-end loading of nominal debt contracts; and (iv) the cost of constantly revising price lists (so-called *menu costs*). The costs of unanticipated inflation (price shocks) include: (i) costs associated with financial risk linked to long-term contracts, costs of contract insurance etc; and (ii) costs associated with non-efficient use of the resources (resulting from misunderstanding of their real prices, since in inflationary environment it is difficult to understand and measure dynamics of relative prices in the economy).

Since shopping, and thereby noticing prices, is a basic everyday activity for ordinary people, thinking about prices is also a major part of people's thinking, and the subject "inflation" is one of great personal interest for most people. Ordinary people, however, perceive problems caused by inflation in slightly different way than economists do. Shiller (1996), based on the survey performed in several countries, found that among non-economists, the largest concern with inflation appears to be that it lowers people's standard of living. Non-economists appear often to believe in a sort of sticky-wage model, by which wages do not respond to inflationary shocks, which are themselves perceived as caused by certain people or institutions acting badly. This standard of living effect is not the only perceived cost of inflation among non-economists: other perceived costs are tied up with issues of exploitation, political instability, loss of morale, and damage to national prestige.

[1] See, e.g., Bakhshi, Haldane and Hatch (1998).

The most popular measure of inflation is the consumer price index (CPI). It is defined as the ratio of the cost of the consumer basket (which has a fixed structure), in the current prices, to the cost of this basket measured in the prices of the base period. CPI shows changes in the cost of living or final expenditures of consumers on the acquisition of goods and services. It is important to note that although CPI is a measure of inflation, it is not an ideal measure of the general growth of prices. In particular, according to "Boskin report"[2], the level of inflation in US estimated based on CPI overestimates real price change on about 1,1 per cent, what leads to significant budgetary loses (total budgetary loses associated with inflation in period 1997–2000 amounted to US$ 1,7 billion)[3]. However, since there is no better measure of inflation available, CPI is used in many countries including Georgia. Details of CPI computation in Georgia are presented in Section 2.

During the first years of independence Georgia experienced hyperinflation (percentage change in end-year consumer prices amounted about 7488 per cent in 1993 and 6474 per cent in 1994)[4]. However, in the subsequent years there was significant inflation decrease resulting from strong anti-inflationary policy. Inflation has sharply fallen and reached the level of 4,6 per cent in 2000 (see Table 1).

Therefore the stabilization reforms in Georgia could be divided into two periods:

- 1992–1995 when high inflation (hyperinflation in 1993–1994) and deep structural unbalances took place as a result of the collapse of USSR, internal armed conflict and the war in Abkhazia;
- 1996–1997 when inflation went down (see Table 1) relative macroeconomic stability was achieved and some revival of business activity slowed down the economic recession.

During the first years of independence Georgia experienced significant economic crisis. In 1992–1993 GDP was reduced almost by 70 per cent. The economy shifted to the shadow sector. The government unable to collect taxes had to get external debt resulting in significant foreign outstanding arrears. In the same time huge monetary emissions caused hyperinflation.

In 1994 government initiated the process of intensive system transformation based on, in general terms, a transition to a market economy and involved economic liberalization accompanied by privatization of the state-owned sector. In 1995 national currency – lari (GEL) was introduced and a number of reforms were implemented to stabilize and liberalize the economy. Subsequent macroeconomic reforms aimed at strengthening the

[2] See Boskin *et.al* (1996).

[3] Overestimation of social payments was the main source of these loses.

[4] Source: National Bank of Georgia.

Table 1. Overall consumer prices index and consumer price indices by commodity groups in 1995–2000 (December of the previous year = 100%)

	1995	1996	1997	1998	1999	2000	2001
Overall CPI	**157.4**	**113.8**	**107.3**	**110.7**	**110.9**	**104.6**	**103.4**
Food, Beverages and Tobacco	153.8	108.1	107.9	109.9	106.5	107.5	103.7
Clothing and Footwear	155.6	112.2	97.9	108.2	103.6	100.7	100.4
Rent, Water, Fuel, and Power	131.3	117.3	133.4	126.6	147.0	100.2	108.9
Household Goods	191.2	117.3	99.4	115.9	103.3	98.5	101.4
Medical Care	256.6	129.4	101.6	111.4	105.5	102.8	103.0
Transportation and Communication	141.5	211.7	111.5	108.0	124.3	100.5	99.4
Recreation, Education, and Culture	173.8	107.2	99.0	107.8	106.9	99.7	103.7
Personal Care and Effects	197.6	140.8	112.9	120.1	105.7	99.5	101.6

Source: State Department for Statistics of Georgia.

Table 2. Basic macroeconomic indicators

	1996	1997	1998	1999	2000	2001
Nominal GDP (million lari)	3 846.4	4 638.7	5 040.6	5 666.0	5 970.6	6 505.9
Real GDP growth (% Y to Y)	11.2	10.6	2.9	3.0	2.0	4.5
Budget deficit (% GDP)	6.6	5.9	3.7	4.5	3.2	2.8
Gross international reserves (USD million-end of period)	190.2	200.3	123.6	132.9	112.9	159.9
Export (USD million)	310.0	376.5	304.5	341.0	491.2	490.0
Import (USD million)	897.5	1 162.8	994.5	889.8	905.4	1 003.4
Trade balance (USD million)	-587.5	-786.3	-690.1	-548.8	-414.2	-513.5
Current account balance (USD million)	-569.5	-513.8	-271.1	-214.5	-28.6	-226.8
Exchange rate (period average), GEL/USD	1.2621	1.2975	1.3915	2.0194	1.9754	2.0722

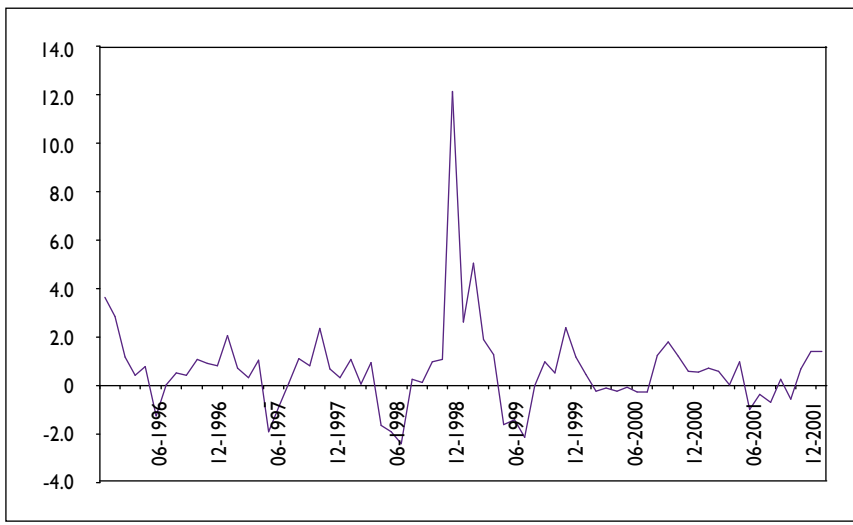
budget, enforcing stability of national currency, reducing inflation rate and ensuring economic growth.

In the following years significant progress has been achieved in establishing relative macroeconomic stability (see Table 2). After a massive output decline, real GDP started to increase, showed solid growth in 1996 and 1997 (11.2 per cent and 10.6 per cent, respectively), stabilized at the level of about 3 per cent in 1998 and 1999, and decreased to 2 per cent in 2000. Deficit of the state budget decreased from 6,6 per cent of GDP in 1996 to 4.5 per cent of GDP in 1999 (3.7 per cent of GDP in 1998), 3.2 per cent in 2000 and 2.8 per cent in 2001.

Summing up, since mid-1994, Georgian authorities have been implementing stabilization and structural reform program, however, observed persistence of rather large budget deficits, problems with their financing, and vulnerable exchange reserves position, suggests that macroeconomic environment in Georgia still cannot be considered as stable.

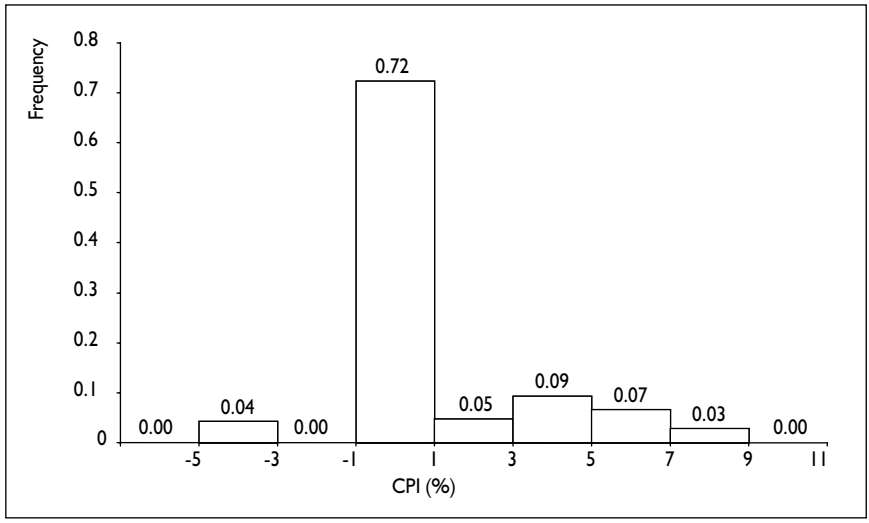
Nevertheless, in years 1996-2000 (with the exception of the period of Russian crisis) inflation can be considered as rather stable (Table 1) with more or less regular seasonal fluctuations (see Figure 1).

Figure 1. Dynamics of Georgian CPI in the period: Feb.1996–Dec.2001



The jump in general price level observed in 1998 (the year of Russian crisis) can be explained by large amount of imported goods in Georgian consumer basket (according to

Figure 2. Distribution of individual inflations of subgroups of goods and services included into consumer basket in April 2001 (CPI : 1.0%)[5]



the State Department of Statistics of Georgia it is about 80–85%) and depreciation of nominal exchange in this year.

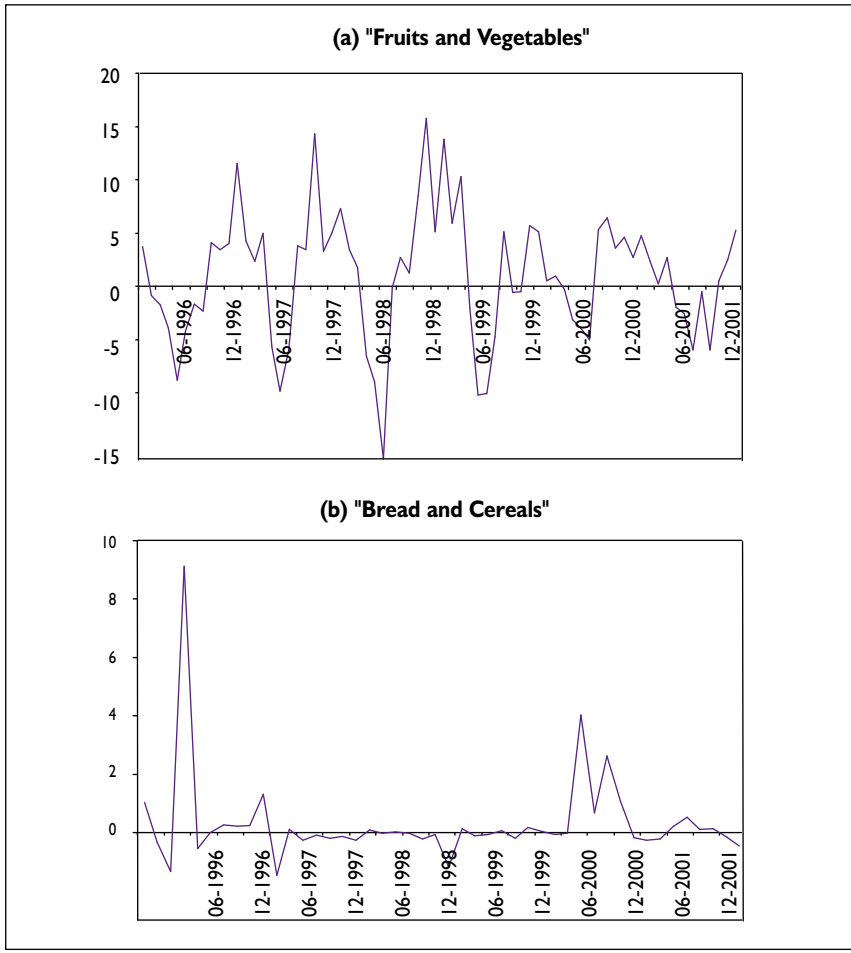
Note that CPI itself is determined as a change of weighted average of the price level of goods and services included into the basket (individual components). Consequently, it has never happened that prices of all individual components follow the pattern of changes of an aggregate indicator of the price level (CPI). Moreover, changes of the price level of individual components (individual inflations) differ significantly from the changes of CPI (see Figure 2). Furthermore, price changes of individual components of inflation differ significantly from each other. As an example, dynamics of price changes of two subgroups: "Fruits and Vegetables" and "Bread and Cereals", is presented in Figure 3.

Economic literature shows that distribution and dynamics of individual inflations of subgroups of goods and services included into consumer basket is not unresponsive for the general price level.[6] Therefore, the purpose of this work is (1) to examine relation between dynamics of the general price level in Georgia and characteristics of distributions of individual inflations of goods and services included into consumer basket, and (2) analyze relative price adjustment in the period of relative macroeconomic stabilization.

[5] It is assumed that weights of subgroups of goods and services included to the consumer basket reflect shares of all prices whose changes correspond to a given interval.

[6] See Fisher (1982) for the analysis of developed countries and Woźniak (1998) for corresponding analysis in transition countries.

Figure 3. Dynamics of price changes of two subgroups of goods:



The work is organized as follows. In Section 2 the measurement of inflation in Georgia is considered. In Section 3 the relationship between basic characteristics of distributions of individual inflations (variability and skewness) and general price level in the period of moderate inflation in Georgia is discussed. In Section 4 the changes of relative prices of goods and services included into consumer basket are analyzed. Groups of goods and services, whose prices increase more (or less) than others, are determined and effects of relative price changes are discussed. Finally, groups of goods and services having the

biggest/smallest impact on the general price level in the period under study are presented and discussed. The last section concludes.

2. Inflation Measurement and Structure of CPI in Georgia

The system of price indicators, estimated by statistical authorities in Georgia (State Department for Statistics of Georgia), includes two basic indicators: Producer Price Index (PPI) and Consumer Price Index (CPI). Both indices are estimated based on data from different kind of enterprises in the country. CPI is estimated using Laspeyres's formula:

$$CPI^t = \frac{\sum_{i=1}^{K} p_i^0 q_i^0 \frac{p_i^t}{p_i^0}}{\sum_{i=1}^{K} p_i^0 q_i^0} \quad , \tag{1}$$

base on individual indices ($cpi_i^t = p_i^t / p_i^0$) of retail prices of goods and services included in the consumer basket (p_i^0 denote price level of *i*-th good/service in the base period, p_i^t denote price level of *i*-th good/service in period *t*, and q_i^0 denote physical quantities of goods/services in the basket reflecting the structure of consumer expenditures in the base period). Individual indices are estimated based on monthly observations of retail prices of goods and services. Statistical authorities estimate CPI in relation to: (i) to previous month, (ii) to December of previous year, and (iii) to corresponding month or period of previous year.

The consumer basket of the average urban resident of Georgia includes $K=296$ goods and services. Weights of goods and services in the basket reflect the structure of actual consumer expenditures of the population in the base period, and are determined based on the budget survey of households. Prices of goods and services used for CPI estimations are collected in five cities of Georgia (Tbilisi, Kutaisi, Batumi, Gori, Telavi) that covers up to 2000 retail and service objects: shops, markets, petrol stations, and others. From 1997 price indices are collected separately in Tbilisi and other regions. Afterwards they are aggregated according to the following shares: Tbilisi – 0.5986, Kutaisi – 0.2088, Batumi – 0.0903, Gori – 0.0713, Telavi – 0.0310.

Since the independence weights of goods and services included in the consumer basket have been changed several times (in 1993, 1995 and 1997). Currently, weights of the consumer expenditures set in 1997 are used for CPI estimation. The current structure of the consumer basket is presented in Table A1 (see Appendix).

Registration of prices is carried out by the sample method in different localities and the results are published for 8 main groups and 56 subgroups of the consumer expenditures (groups and subgroups are presented in Table A1 in Appendix).

It should be recognized that although CPI is determined as weighted average of individual components (goods and services included to the consumer basket), i.e.,

$$CPI_t = \sum_{i=1}^{K} w_{i,t}\pi_{i,t} \tag{2}$$

where

K denotes the number of goods/services in the consumer basket (number of individual components of CPI),

$w_{i,t}$ $(i = 1, \ldots, K)$ denotes weight of i-th component of CPI in the period t,

$\pi_{i,t}$ $(i = 1, \ldots, K)$ denotes individual inflation of i-th component of CPI period t;

the weights of individual price indices are estimated as

$$w_{i,t} = \frac{p_{i,t-1}q_i^0}{\sum_{j=1}^{K} p_{j,t-1}^0 q_j^0} \tag{3}$$

where

$p_{i,t-1}^0$ $(i=1,\ldots,K)$ denote price level of i-th good/service in the previous (base) period,

q_i^0 $(i=1,\ldots,K)$ denote physical quantities of goods/services in the basket reflecting the structure of consumer expenditures in the base period;

and, consequently, since the price change is related to the previous period, weights $w_{i,t}$ $(i=1,\ldots,K)$ are not constant (constant are the weights reflecting structure of the basket q_i^0, $i=1,\ldots,K$). Weights $w_{i,t}$ $(i=1,\ldots,K)$ used for CPI computation depend on the choice of the base period. Thus, when estimating monthly indices of inflation reflecting the growth of prices in relation to previous month, weights $w_{i,t}$ change from month to month because the absolute and relative prices of goods change from month to month. A similar situation occurs in the estimation of indices of annual and quarterly inflation.

3. Distributions of Individual Inflations and Overall Inflation in Georgia

At any level of decomposition of the consumer price index and any frequency of observations it is evident that price changes of separate goods or services (groups of goods/services) inside the consumer basket differ from each other. As a result, relative

prices of goods/services or groups of goods/services included in the consumer basket change significantly over time, and, consequently, they change the characteristics of the distribution of individual inflations.

There is a substantial literature documenting the statistical relationship between the first and second moments of the distribution of price changes, or more precisely, the relationship between the aggregate rate of inflation and the dispersion of relative price changes for individual goods/services.[7] It has been found that aggregate inflation is positively correlated with the variability of individual price changes.[8] This literature also documents the existence of a relationship between inflation and a shape of the distribution of prices as measured by a statistic such as the skewness of the distribution. However, this relationship has received much less attention than that between inflation and the variance (or standard deviation) of the distribution of individual prices.

The number of economic models aimed to explain links between volatility of relative prices and inflation level have been developed. The traditional interpretation of the relationship between the first and higher moments of the distribution of individual prices is that it is symptomatic of price rigidities of one form or another. For example, Fischer (1982) outlines three possible theories why inflation and the variability of relative prices should be positively correlated. Two of them (costly price adjustment and the 'asymmetric price response hypothesis') explicitly invoke nominal rigidities as the reason for the positive correlation (the third relies on Lucas-style information imperfections across the market).

Therefore, there is a general agreement about the correlation between general price level and the second moment of the distribution of individual prices, however, up to now the nature of causation remains unclear. In particular, some of existing theoretical models show that it is the increased variability of individual inflation rates that rises the level of inflation[9], while the others models show different direction of causality, i.e., that increased inflation level increases volatility of relative prices[10]. Empirical research in the area still cannot unanimously confirm the direction of causality[11].

To summarize the current state of knowledge one could say that there are theoretical and empirical reasons to state that there is strong correlation between variability of individual prices of goods/services or groups of goods/services included in the consumer

[7] See Fisher (1981) for the overview of related literature.

[8] Representative research includes Vinning and Elwertowski (1976), Domberger (1987), Marquez and Vinning (1984) and Golob (1993).

[9] See, e.g., Ball and Mankiw (1994).

[10] See, e.g., Mussa (1977), Shleshinski and Weiss (1977).

[11] See Fisher (1981).

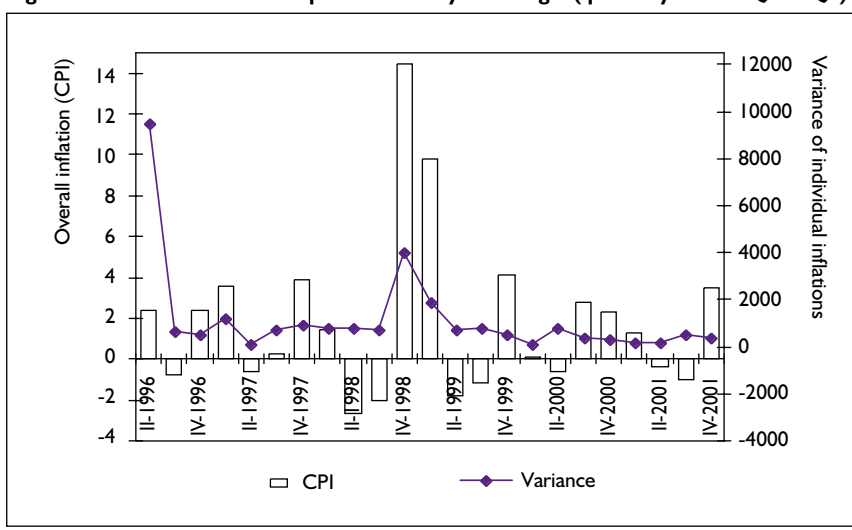
basket and the growth of price level based on CPI. Moreover, not only the variance of changes in individual prices of goods/services (groups of goods/services) is connected with the general level of inflation, but also there is a relationship between forms of distributions of individual inflations (skewness) and the general rate of inflation based on CPI.

Figure 4 presents two statistics: the quarterly inflation rate (left scale) along with the magnitude of relative price changes during a particular quarter (on the right scale). The magnitude of relative price changes is measured by the variance of changes in individual prices of goods/services[12]:

$$WVAR_t = \frac{1}{K-1}\sum_{i=1}^{K}(w_{it}\pi_{i,t} - \pi_t / K)^2 \quad , \tag{4}$$

where K denotes the number of goods/services in the consumer basket (number of individual components of CPI), $w_{i,t}$ $(i=1,\ldots,K)$ denotes weight of i-th component of CPI in the period t, $\pi_{i,t}$ $(i=1,\ldots,K)$ denotes individual inflation of i-th component of CPI in period t; and $\pi_t = \sum_{i=1}^{K} w_{i,t}\pi_{i,t}$ stands for overall inflation in period t.

Figure 4. Inflation and relative price variability in Georgia (quarterly data 96Q2-01Q4)



The basic message that emerges from the figure is intuitively obvious: the distribution of individual inflation rates has been most dispersed at the beginning of the period

[12] Variance of weighted distribution (see Woźniak, 1997). It takes into account of the relative share of a price component in the index, giving mere weight to the variation of important prices.

considered on the figure, i.e., at the beginning of stabilization period, and after Russian crisis (the end of 1998), when prices had to adjust to the economic shock caused by the crisis. Furthermore, variability of individual inflation rates decreases from year to year, what confirms positive effects of stabilization efforts of Georgian authorities.

It has to be recognized that while a brief inspection of Figure 4 does not give a conclusive answer to the question on the nature of this relationship, a positive correlation between inflation and a measure of relative price variability is visible.

As mentioned above variability of individual inflation rates is not the only characteristics of the distribution of individual inflations that may affect overall price index. It has been shown in the literature that at the given level of inflation and variance of individual prices of goods/services included in the consumer basket, some forms of the distribution of individual inflations cause the increase in the general level of inflation and others cause the reverse process.

The form of the distribution of individual inflations can be characterized by skewness, which can be computed as[13]:

$$WSK_t = \frac{K\sum_{i=1}^{K}(w_{it}\pi_{i,t} - \pi_t / K)^3}{(K-1)(K-2)[\frac{1}{K-1}\sum_{i=1}^{K}(w_{it}\pi_{i,t} - \pi_t / K)^2]^{3/2}} \quad , \qquad (5)$$

where K denotes the number of goods/services in the consumer basket (number of individual components of CPI), $w_{i,t}$ ($i=1,\ldots,K$) denotes weight of i-th component of CPI in period t, $\pi_{i,t}$ ($i=1,\ldots,K$) denotes individual inflation of i-th component of CPI in period t, and

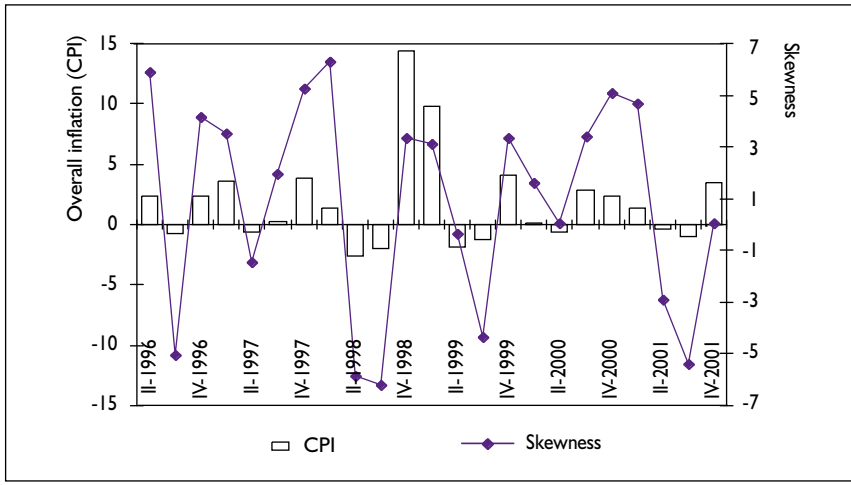
$\pi_t = \sum_{i=1}^{K} w_{i,t}\pi_{i,t}$ stands for overall inflation in period t.

It has been shown (see, e.g. Woźniak, 1997) that positive values of skewness contribute to the growth in overall inflation, and negative skewness slows down the overall inflation. Figure 5 presents two statistics: the quarterly inflation rate (left scale) along with the magnitude of skewness in a particular quarter (on the right scale).

Visual inspection of Figure 5 shows strong seasonality of skewness: low or negatives values in second and third quarter and large and positive values in the first and fourth quarter, which corresponds to the seasonal pattern of the overall inflation index in Georgia. Such a figure could suggest existence of some correlation not only between skewness and inflation rates but also between skewness and the magnitude of inflation differences.

[13] Skewness of weighted distribution.

Figure 5. Inflation and skewness of the distribution of individual prices in Georgia (quarterly data 96Q2-01Q4)



4. Relative Price Adjustment

Evaluating relative price variability and characteristics of distributions of individual inflations does not give any insights into factors behind price changes. Moreover, it even does not indicate whether any actual relative price shifts take place in the economy (theoretically, it is possible that even during periods of persisting high relative price variability, relative prices measured at the end of the sample period did not change and the variability as detected by variance and skewness resulted from different paths of catching up with inflation among sectors). Thus, to observe relative price adjustment it is necessary to examine relative price changes on cumulative basis.

Of course, in the case of Georgia (as in other transition economies) there is no doubt that high relative price variability was indeed accompanied by significant relative price change, since as a result of many economic shocks the price structure becomes during the last decade to some extend similar to the structure observed in more developed market economies.

The change in relative prices in the period of transition to market economy in Georgia can be characterized with the help of relative prices index RP_j, which can be constructed for selected groups of goods/services:

$$RP_{j,t} = \pi_{j,t} / CPI_t, \quad (6)$$

where

$\pi_{j,t}$ – individual inflation of j-th component of CPI at time t,

CPI_t – the value of CPI at time t.

In the analysis below the first quarter of 1996 has been chosen as a base period (i.e., $t = 0$). This means that we assume that in this period $\pi_{j,0}=CPI_0=RP_0=1$. Therefore, the starting relative prices for all analyzed groups of goods/services in the end of the first quarter of 1996 are equal to 1. If in a certain period (a quarter) the index of relative prices of j-th group of goods/services is lower than 1, this means that in this quarter the increase of prices for the j-th group of goods/services was lower that the aggregated increase in prices in the economy, and that the relative price of this group of goods/services in this quarter decreased. In contrary, relative price index bigger than one indicates relative improvement of the given price.

Table 4 presents the results of the relative price adjustment of main groups of goods and services. Groups of goods and services, whose prices in the period Q1:96-Q4:01 increased more than the overall relative price index, are shadowed.

Table 4. Results of price evolution in the period 1996–2001 (overall relative price index: 1.48)

Name	Relative price index
1. Food, Beverages and Tobacco	1.40
2. Clothing and Footwear	1.17
3. Rent, Water, Fuel, and Power	3.06
4. Household Goods	1.19
5. Medical Care	1.46
6. Transportation and Communication	2.58
7. Recreation, Education, and Culture	1.22
8. Personal Care and Effects	1.66

Source: State Department for Statistics of Georgia, authors' computations.

It follows that there are three main groups of goods and services, whose prices in the considered period increased more than the overall relative price index: "Rent, Water, Fuel and Power", "Transportation and Communication" and "Personal Care and Effects" (note that the first two belongs to the group of goods and services with administratively regulated prices). The lowest changes of relative prices in the analyzed period correspond to such groups of goods and services as: "Clothing and Footwear", "Households Goods" and "Recreation, Education and Culture". As one could expect the

change of relative prices of the biggest group of goods (with total weight 0.67): "Food, Beverages and Tobacco" (as well as the group "Medical Care") was in line with the change of the overall price index. The development of the relative price indices of main groups of goods and services in the period under consideration is presented in Figure 6.

Visual inspection of Figure 6 shows that prices of utilities outpaced inflation the most. It is remarkable that a significant upward shift of relative prices of this group has been observed during the whole period, what may suggest that the adjustment process of these prices is still not finished.

It is interesting to divide goods and services included into consumer basket in two following categories: (1) goods and services with administratively regulated prices and (2) goods and services with free market prices. To show the scale of the adjustment processes in these two categories of goods and services we identified categories for which the government (national or local) can be considered as a price setter. Administrative controls are often vague and exercised through different channels (see Woźniak 1997, 1998), therefore, compiling the comprehensive list is complex task and it is beyond the scope of this analysis. Thus, due to insufficient decomposition, the group of goods and services under administrative control contains broad composite categories which are subject to controls as a whole, however may include some items with free market prices. The resulting outcome should be therefore considered as illustrative one. Evolution of relative prices of selected groups and subgroups with administratively regulated prices is presented in Figure 7. It follows from Figure 7 that Georgia made a significant progress in adjusting its administrative prices since most of administratively regulated prices raised much more than the general price level (prices for "Communication", "Fuel and Power", and "Public Transportation"). Prices for "Fuel and Power" experienced the highest growth. The peak of the growth was observed from the end of 1998 to the end of 1999. It seems that this was a direct result of two factors: (1) significant depreciation of lari, and (2) privatization of the energy sector distribution company "Telasi". Some other groups of goods and services with administrative regulated prices followed the change of the general price level (e.g. "Medical care"), but some of them raised much less than the general price level (e.g., "Alcohol beverages").

In the group of goods and services with non-administratively regulated prices (free market prices), the change of prices in the period under consideration was also very different (see Figure 8 (food items) and Figure 9 (non-food items)). The biggest price increase was exercised by "Fruits and Vegetables" in food group, and "Personal Care and Effects" in non-food group (these groups were the only groups whose prices increased in the considered period more than the general price level in the economy). The highest price increase has been observed at the end of 1998 and in the beginning of 1999 (again it can be explained by significant depreciation of lari in this period). Note, however, that the

Figure 6. Relative price indices of main groups of goods and services

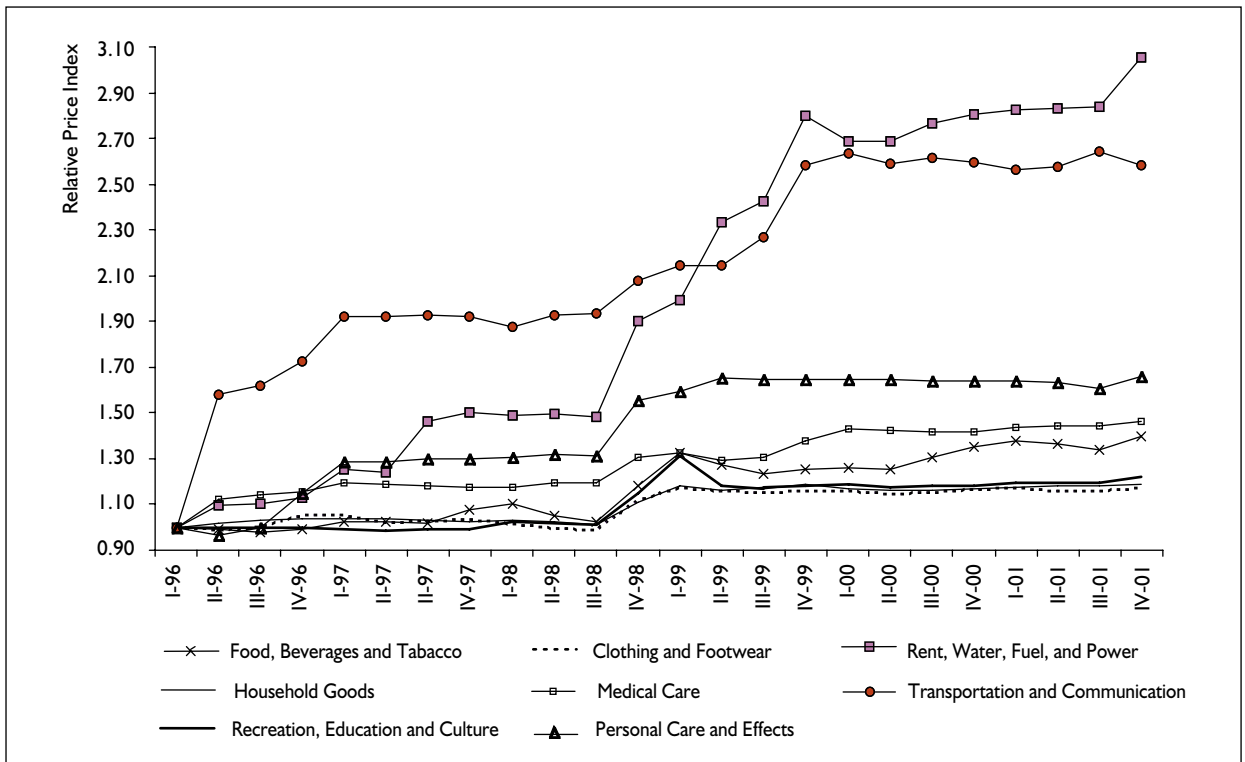


Figure 7. Evolution of administratively regulated prices

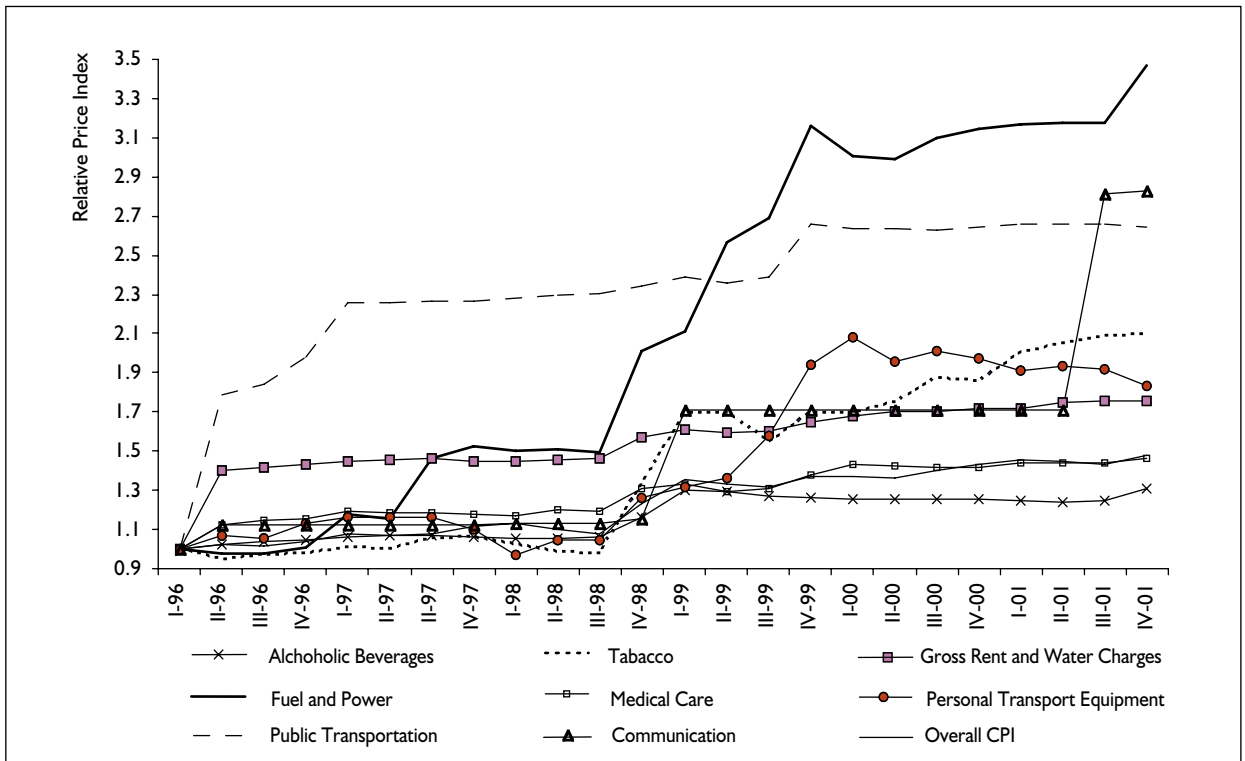


Figure 8. Evolution of free market prices for food and beverages

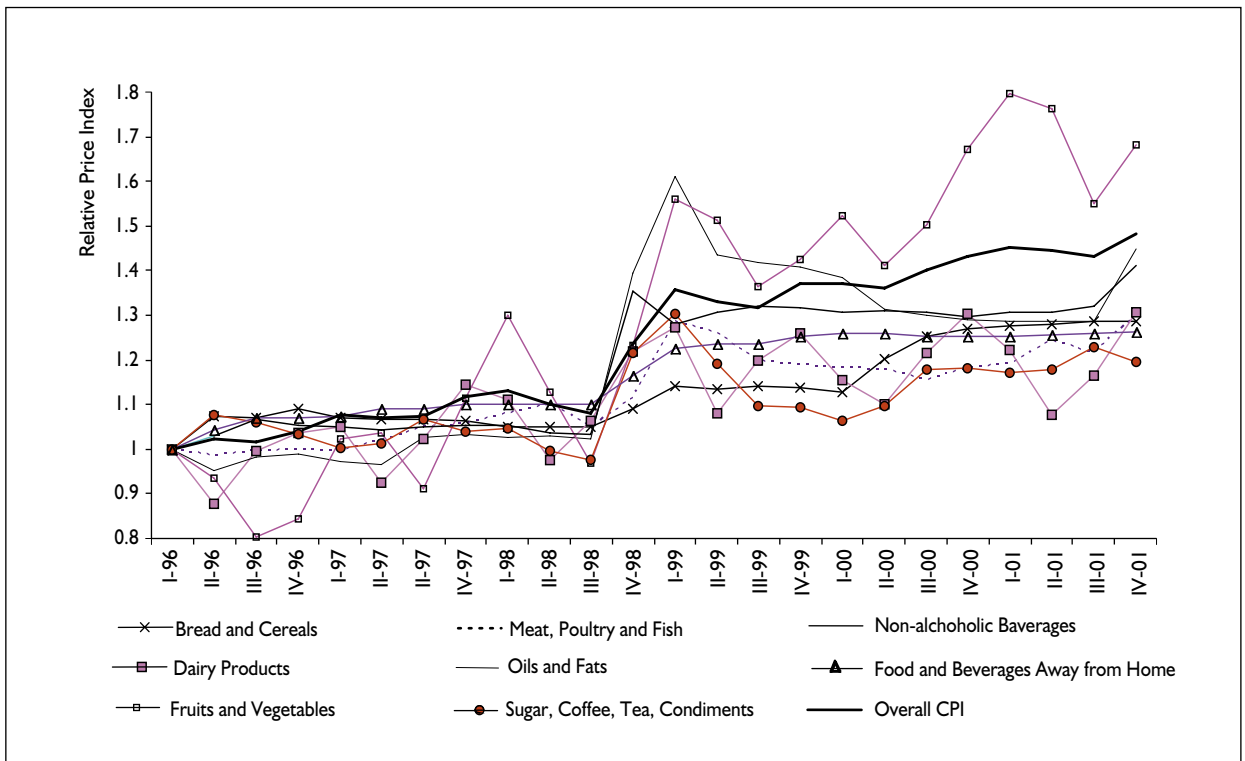


Figure 9. Evolution of free market prices for other (non-food and beverages) categories

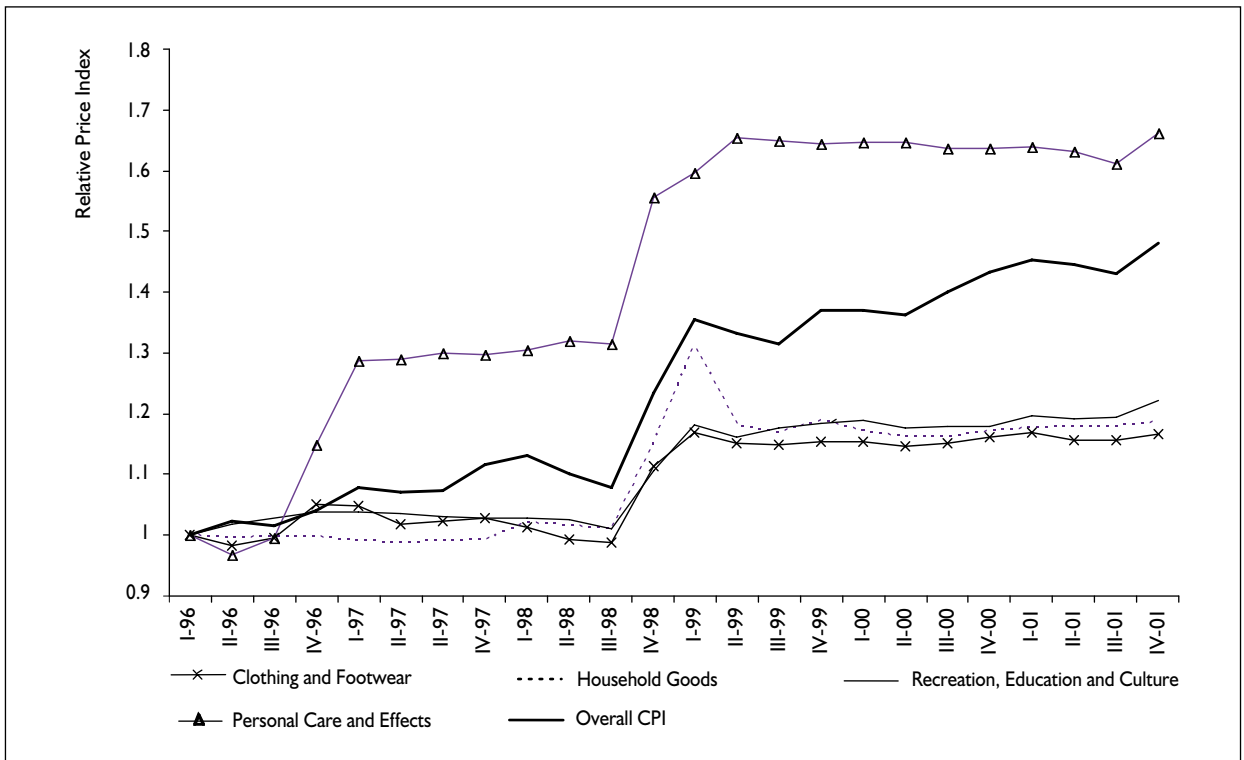
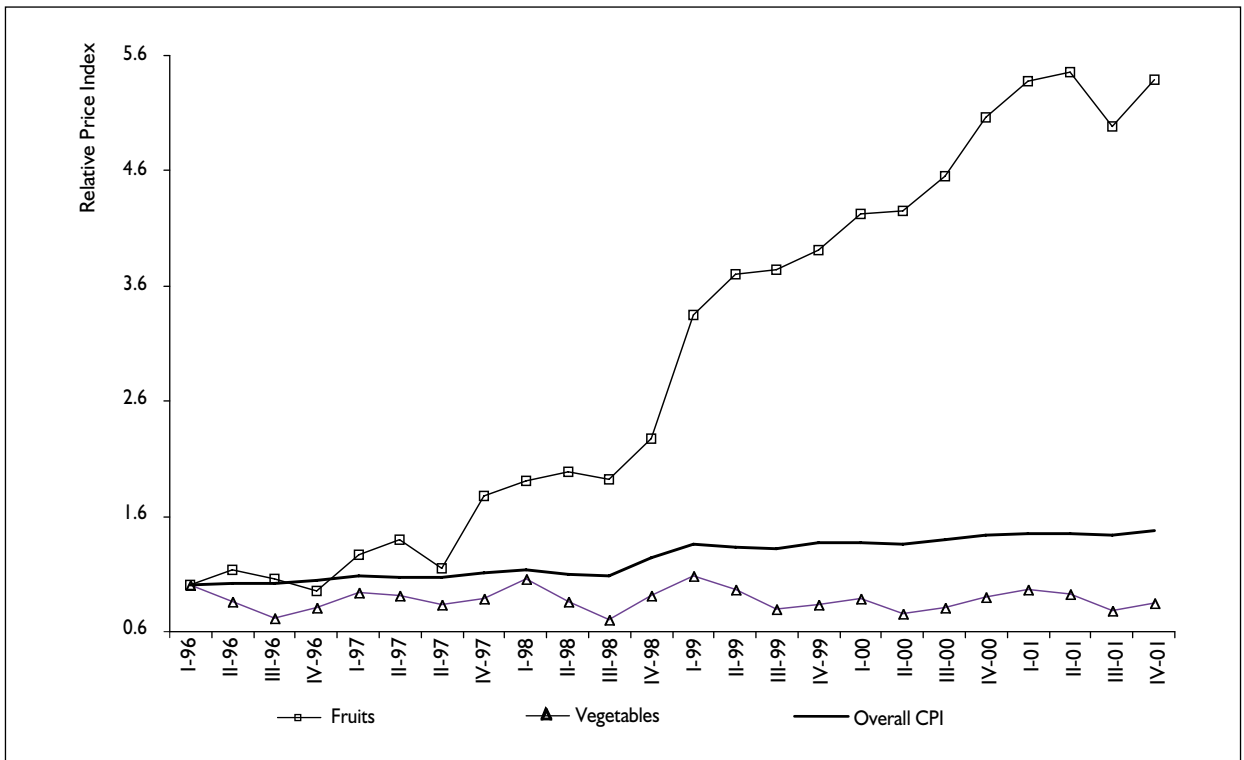


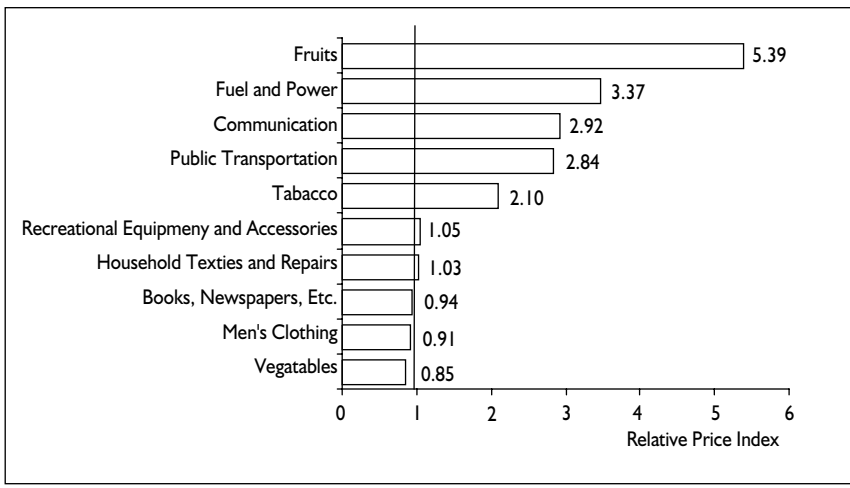
Figure 10. Relative price index of the items included to the group "Fruits and Vegetables"



pattern of price change within the group "Fruits and Vegetables" was very unequal: prices of "Fruits" increases significantly, while prices of mostly domestically produced "Vegetables" decreased (see Figure 10). All other groups of goods and services with free-market prices became relatively cheaper (i.e., their prices increased less than general price level).

Figure 11 presents values of relative price indices for groups of goods and services with the highest downward and upward relative price shifts in the period 1996–2001. It is clear from the picture that the goods included to the group "Fruits and Vegetables" exercised the highest and the lowest price change in the period considered.

Figure 11. Extreme relative price changes in the period 1996–2001



Taking into account the example of relative price change within the group "Fruits and Vegetables" it is obvious that not all relative prices within a particular group moved in the same direction, i.e., if the relative price of certain subgroup decreased (increased), it does not mean that the relative prices of all goods included into this subgroup decreased (increased). Therefore, it may happen that inside subgroups "Fruits" and "Vegetables" relative prices of some of products increased significantly and some other decreased. However, since State Department for Statistics of Georgia does not provide more detailed data, we can only extrapolate the results for the subgroup to all constituent goods.

5. Conclusions

In the paper dynamics of relative prices of groups of goods and services in Georgia in the five years period of moderate inflation (1996–2001) has been analyzed. Details of CPI computations have been described and discussed. It has been shown that overall inflation in Georgia measured based on CPI is positively correlated with standard deviation (or variance) of the distribution of individual prices, and also with the third moment (skewness) of this distribution. Consequently, the efforts to minimize relative price variability should be considered an important part of anti-inflationary policy.

Based on empirical analysis presented in the paper the major components of CPI, determining its growth in the period from 1996 to 2001 have been specified. They include mainly goods and services with administratively regulated prices ("Fuel and Power", "Public Transportation", "Communication", "Tobacco"). Relative prices for food (excluding fruits) increased less than overall price level in the country (taking into account that during communist regime in Georgia, as in other former soviet republics, prices for food were extraordinary low, this relatively small price increase may be particularly due to significant price increase in the first period of the reform process). Similarly, prices for non-food groups of goods and services, such as "Clothing and Footwear", "Households Goods" and "Recreation, Education and Culture" relatively decreased. This can be explained by observed correlation between the price increase and depreciation of national currency.

Empirical data presented in the paper reveal that in the period under consideration Georgia made a significant progress in adjusting its administrative prices since most of such prices raised much more than the general price level (prices for "Communication", "Fuel and Power", and "Public Transport"). Taking into account weights of groups of goods/and services one can conclude that increase in prices of utilities have undoubtedly led the inflationary process. At the same time, the relative prices for some goods, whose nominal prices are established administratively or are controlled by the government (for example, the prices for alcohol), fell considerably. Since a possible increase in the excise tax for these goods may be a source of additional revenue for the government budget one should anticipate their increase. Therefore, although the distribution of individual components of inflation from year to year is characterized by smaller variance (standard deviation) and smaller skewness, one can conclude that it is too early to expect any fast termination of the process of changing the structure of relative prices. However, if the overall price

variability induced by these administrative increases will be small, it can positively affect anti-inflationary policy. Therefore, the main policy recommendation for conducting anti-inflationary policy should be frequent increases of administratively regulated prices slightly in excess of overall inflation so that upward adjustments can take place without inducing large price variability.

References

Ball, L., Mankiw, N.G., (1994). Asymmetric Price Adjustment and Economic Fluctuations, *Economic Journal*, Vol. 104, 423, pp. 247–261.

Bakhshi H., Haldane A., G., Hatch N. (1998). Some Costs and Benefits of Price Stability in the United Kingdom, *NBER Working Paper* No. W6660.

Boskin, M.J., E Dulberger, R.Gordon, Z Griliches, D. Jorgenson (1996). Consumer Prices, the Consumer Price Index and the Cost of Living, *Journal of Economic Perspectives* 12, pp. 3–26.

Domberger (1987). Relative Price Variability and Inflation: A Disaggregated Analysis, *Journal of Political Economy* 95, pp. 547–566.

Fisher, S., (1981). Relative Shocks, Relative Price Variability, and Inflation, *Brookings Papers on Economic Activity*, 2, pp. 381–441.

Fisher, S., (1982). Relative Price Variability and Inflation in the United States and Germany, *European Economic Review*: 18.

Golob (1993). Inflation, Inflation Uncertainty, and Relative Price Variability: A Survey, *Federal Reserve Bank of Kansas City Research Working Paper*, pp. 93–115.

Marquez and Vinning (1984). Inflation and Relative Price Behaviour: A Survey, In Ballabon, M. (Ed.). Economic Perspectives: An Annual Survey of Economics 3, Harwood Academic, New York, pp. 1–56.

Mussa M., (1977). The Welfare Cost of Inflation and the Role of Money as a Unit of Account, *Journal of Money, Credit and Banking*, 9, pp. 276–286.

Shleshinski, E., Weiss, Y., (1977). Inflation and Cost of Price Adjustment, *Review of Economic Studies*, 54, pp. 287–303.

Shiller R.J. (1996). Why Do People Dislike Inflation? *NBER Working Paper* No. W5539.

Vinning and Elwertowski (1976). The Relationship Between Relative Prices and the General Price Level, *American Economic Review*, 66, pp. 699–708.

Woźniak, P., (1997). Relative Prices and Inflation in Poland 1989–1997, *CASE Studies and Analyses No.121*, Warsaw, pp. 48.

Woźniak, P., (1998). Relative Prices Adjustment in Poland, Hungary and the Czech Republic, Comparison of the Size and Impact of Inflation, *CASE-CEU Working Paper No. 12,* pp. 46.

Appendix

Table A.1. Detail structure of the consumer basket

Name	Total weights (in %)	Weights in %	
		Tbilisi 0.5986	Others 0.4014
1. Food, Beverages and Tobacco	**63.3097**	**37.8972**	**25.4125**
1.1. Bread and Cereals	19.9170	11.9223	7.9947
Rice	0.9667	0.7933	1.2253
Flour	0.9194	0.5187	1.5171
Buckwheat	0.1476	0.1689	0.1159
Farina, semolina	0.0880	0.0925	0.0814
Corn flour	0.3060	0.1109	0.5970
Corn bread, white (standard one)	10.3357	10.4349	10.1877
Other kind of bread (Turkish, Greece, gray and so on)	5.3130	4.4307	6.6289
Roll	0.3011	0.3124	0.2842
Cake (biscuit)	0.2108	0.2187	0.1990
Waffle	0.0903	0.0937	0.0853
Macaroni and macaroni products	0.8623	0.8535	0.8756
Starch	0.3761	0.3761	0.3760
1.2. Meat, Poultry, and Fish	7.8804	4.7172	3.1632
1.2.1. Meat and polutry	*6.6386*	*3.9739*	*2.6647*
Beef	2.5749	2.6545	2.4562
Pork	1.3521	1.0888	1.7448
Sheep meat	0.1822	0.0919	0.3169
Chicken meat	1.3335	1.5213	1.0533
Turkey meat	0.2016	0.2355	0.1509
Sausage	0.0435	0.0537	0.0282
Boiled sausage	0.4476	0.5045	0.3627
Smoked sausage	0.4476	0.5045	0.3628
Beef preservative	0.0279	0.0281	0.0275
Pork preservative	0.0279	0.0281	0.0275
1.2.2. Fish	*1.2418*	*0.7434*	*0.4985*
Fresh fish	0.4525	0.4669	0.4311
Frozen fish	0.4177	0.3536	0.5133
Smoked fish	0.2808	0.3171	0.2266
Fish preservative	0.0908	0.0617	0.1343
1.3. Dairy Products and Eggs	5.9638	3.5699	2.3939
1.3.1. Dairy products	*4.1941*	*2.5106*	*1.6835*
Milk	0.2840	0.1231	0.5239
Milk powder	0.1220	0.0929	0.1654
Matsoni (national milk product)	0.8273	1.0035	0.5646
Sour cream	0.1244	0.1325	0.1124
Cottage cheese	0.1290	0.1338	0.1220
Cheese	2.5155	2.1832	3.0109
Kefir	0.1919	0.1747	0.2175

Table A.1. Detail structure of the consumer basket (cd)

Name	Total weights (in %)	Weights in %	
		Tbilisi 0.5986	Others 0.4014
1.3.2. Eggs	*1.7697*	*1.0593*	*0.7104*
Eggs	1.7697	1.9559	1.4921
1.4. Oil and Fats	4.5984	2.7526	1.8458
Butter	1.0792	0.9932	1.2074
Margarine	1.6121	1.4388	1.8705
Sunflower oil	1.9071	1.6326	2.3165
1.5. Fruits and Vegetables	12.6782	7.5892	5.0890
1.5.1. Fruits	*3.3717*	*2.0183*	*1.3534*
Apple	0.6618	0.7031	0.6001
Pear	0.3801	0.3641	0.4040
Grape	0.2156	0.2200	0.2090
Mandarin	0.1585	0.1783	0.1289
Orange	0.0912	0.0960	0.0840
Limon	0.0560	0.0603	0.0497
Persimmon	0.0777	0.0772	0.0785
Plum	0.3235	0.3977	0.2128
Peach	0.3235	0.3977	0.2128
Pomegranate	0.0673	0.0850	0.0407
Banana	0.1368	0.1440	0.1260
Watermelon	0.2230	0.2425	0.1941
(Musk)melon	0.1825	0.1984	0.1588
Dried fruits	0.0315	0.0178	0.0519
Nut	0.4429	0.3124	0.6374
1.5.2. Vegetables	*9.3065*	*5.5709*	*3.7356*
Cabbage	0.5030	0.4655	0.5591
Onion	0.7431	0.7913	0.6712
Garlic	0.2567	0.2792	0.2232
Aubergine	0.5886	0.6515	0.4948
Greens	0.8233	0.9726	0.6006
Mushroom	0.0325	0.0317	0.0336
Maroon	0.1573	0.1771	0.1279
Carrot	0.2405	0.2713	0.1944
Haricot old	0.8314	0.5082	1.3134
Fresh haricot	0.4161	0.4492	0.3667
Spinach	0.3235	0.3685	0.2564
Cucumber	0.8733	1.0535	0.6046
Tomato	1.0518	1.1236	0.9447
Potato	2.1691	2.2284	2.0806
Tomato-pasta	0.0963	0.1231	0.0564
Preservatived green haricot	0.0519	0.0663	0.0304
Preservatived cucumber	0.0741	0.0947	0.0434
Salting	0.0741	0.0947	0.0434

Table A.1. Detail structure of the consumer basket (cd)

Name	Total weights (in %)	Weights in %	
		Tbilisi 0.5986	Others 0.4014
1.6. Sugar, Coffee, Tea, Condiments	5.2960	3.1702	2.1258
1.6.1. Raw and refined sugar	*3.4634*	*2.0732*	*1.3902*
Sugar	3.4634	3.3552	3.6247
1.6.2. Coffee ,tea and cocoa	*0.5723*	*0.3426*	*0.2297*
Coffee beans	0.2177	0.2000	0.2440
Coffee	0.2177	0.2000	0.2440
Tea	0.1079	0.0740	0.1584
Cocoa	0.0291	0.0175	0.0465
1.6.3. Candy, preserves and sweets	*0.9585*	*0.5738*	*0.3848*
Jam	0.0066	0.0053	0.0087
Honey	0.1471	0.1075	0.2063
Caramel	0.3152	0.3007	0.3368
Chocolate	0.1936	0.1841	0.2078
Chewing gum	0.2696	0.2570	0.2884
Ice-cream	0.0264	0.0236	0.0305
1.6.4. Salt, soctes, condiments	*0.3017*	*0.1806*	*0.1211*
Salt	0.0603	0.0427	0.0867
Pepper	0.0603	0.0427	0.0867
Mayonnaise	0.0603	0.0427	0.0867
Mustard	0.0603	0.0427	0.0867
Yeast	0.0603	0.0427	0.0867
1.7. Beverages at Home	2.3779	1.4234	0.9545
1.7.1. Non-alchoholic beverages	*0.3984*	*0.2385*	*0.1599*
Mineral water	0.2283	0.2118	0.2529
Water (matoniziroushchii)	0.1700	0.2242	0.0892
1.7.2. Alcoholic beverages	*1.9795*	*1.1849*	*0.7946*
Vodka	0.5023	0.3126	0.7852
Cognac	0.0631	0.0442	0.0912
Liqueur	0.1634	0.1700	0.1536
White wine	0.5156	0.5363	0.4846
Red wine	0.3522	0.3663	0.3310
Champagne	0.1637	0.1543	0.1776
Beer (Georgian)	0.1119	0.1264	0.0902
Beer (imported)	0.1074	0.0587	0.1800
1.8. Food and Beverages Away from Home	1.8371	1.0997	0.7374
1.8.1. Restaurants	*0.4922*	*0.2947*	*0.1976*
Dinner in restaurant	0.3185	0.2335	0.4452
Bottle wine in restaurant	0.1737	0.1539	0.2033
1.8.2. Caffes	*1.3449*	*0.8050*	*0.5398*
Cup of coffee in caffee	0.2873	0.3313	0.2217
Ice-cream in caffee	0.2873	0.3313	0.2217
Khachapuri in caffee	0.2587	0.2474	0.2756
Khinkali in bar	0.5115	0.2194	0.9472

Table A.1. Detail structure of the consumer basket (cd)

Name	Total weights (in %)	Weights in %	
		Tbilisi 0.5986	Others 0.4014
1.9. Tobacco	2.7609	1.6527	1.1082
Filter cigarette (Georgian)	0.2104	0.0438	0.4587
Cigarette without filter (Georgian)	0.2319	0.0993	0.4297
Filter cigarette (imported)	2.3186	2.8001	1.6005
2.Clothing and Footwear	**7.7513**	**4.6399**	**3.1114**
2.1. Clothing	4.7588	2.8486	1.9102
2.1.1. Men's Clothing	*1.4960*	*0.8955*	*0.6005*
Men coat	0.0791	0.0890	0.0645
Jacket	0.1302	0.1103	0.1598
Suit	0.2187	0.1805	0.2757
Trousers	0.0763	0.0793	0.0719
Jeans	0.0583	0.0683	0.0434
Shirt	0.1681	0.2048	0.1135
Sport suit	0.0884	0.0754	0.1077
Jumper	0.3625	0.3094	0.4416
T-shirt	0.0629	0.0612	0.0654
Underwear	0.0642	0.0659	0.0617
Socks	0.1221	0.1220	0.1222
Hat	0.0652	0.0742	0.0517
2.1.2. Woman's Clothing	*1.6932*	*1.0135*	*0.6796*
Women coat	0.1031	0.0901	0.1225
Raincoat	0.0866	0.0662	0.1169
Jacket	0.1273	0.0949	0.1757
Women suit	0.1738	0.1541	0.2032
Dress	0.0969	0.0847	0.1150
Blouse	0.0618	0.0683	0.0521
Dress	0.4493	0.4961	0.3795
Dressing gown	0.0551	0.0628	0.0437
Colgate	0.2648	0.3221	0.1793
Women socks	0.1527	0.1624	0.1382
Women underwear	0.0623	0.0695	0.0515
Brassiere	0.0596	0.0659	0.0501
2.1.3. Children's Clothing	*1.5696*	*0.9396*	*0.6301*
Child jacket	0.2671	0.3055	0.2098
Jeans for boy	0.2748	0.2716	0.2795
Jumper for child	0.2083	0.2443	0.1546
Child shirt	0.2007	0.1886	0.2187
Child sport suit	0.1570	0.1496	0.1680
Dress for girls	0.1803	0.1976	0.1546
Colgate for child	0.1803	0.1976	0.1546
Socks for child	0.1011	0.0936	0.1123

Table A.1. Detail structure of the consumer basket (cd)

Name	Total weights (in %)	Weights in %	
		Tbilisi 0.5986	Others 0.4014
2.2. Materials, Sewing & Tailoring	0.1164	0.0697	0.0467
2.2.1. Clothing materials	*0,0666*	*0,0398*	*0,0267*
Dress material	0.0161	0.0127	0.0211
Dress material	0.0170	0.0156	0.0191
Silk dress material	0.0188	0.0097	0.0322
Material for suit	0.0147	0.0125	0.0181
2.2.2. Sewing and Tailoring	*0,0499*	*0,0299*	*0,0200*
Men trousers sewing	0.0170	0.0151	0.0200
Women dress sewing	0.0328	0.0284	0.0395
Dry-cleaning	0.0178	0.0172	0.0187
2.2.3. Laundry and Dry Cleaning	*0,0178*	*0,0107*	*0,0071*
2.3. Footwear, Including Repairs	2.8582	1.7109	1.1473
2.3.1. Men's Footwear	*0.7597*	*0.4548*	*0.3049*
Men shoes	0.3868	0.4144	0.3456
Men winter shoes	0.1841	0.1728	0.2009
Sport shoes	0.1888	0.1957	0.1786
2.3.2. Women's Footwear	*0.7524*	*0.4504*	*0.3020*
Women winter shoes	0.3129	0.3055	0.3239
Women semi seasonal shoes	0.2128	0.2213	0.2003
Women summer shoes	0.1303	0.1406	0.1150
House shoes	0.0963	0.1132	0.0712
2.3.3. Children's Footwear	*1.1463*	*0.6862*	*0.4601*
Semi boot for boys	0.2149	0.2769	0.1224
Boot for girls	0.2809	0.3521	0.1747
Boy shoes	0.1913	0.2530	0.0994
Girl shoes	0.2672	0.3557	0.1354
Sport shoes for child	0.1919	0.2571	0.0948
2.3.4. Repairs to Footwear	*0.1998*	*0.1196*	*0.0802*
Repairing of men shoes	0.0759	0.0898	0.0552
Repairing of women shoes	0.1239	0.1588	0.0719
3. Rent, Water, Fuel, and Power	**6.3376**	**3.7937**	**2.5439**
3.1. Gross Rent and Water Charges	1.3915	0.8330	0.5585
House rent	0.2613	0.3084	0.1911
Cold water rent	0.2204	0.2100	0.2358
Rent for rubbish	0.0748	0.0452	0.1188
Rent for lift service	0.0314	0.0442	0.0124
Cement	0.0556	0.0816	0.0167
Block	0.2607	0.2042	0.3451
Sheet iron	0.0718	0.0469	0.1090
Wood material	0.1624	0.1259	0.2167
Wood chipboard	0.0628	0.0491	0.0832

Table A.1. Detail structure of the consumer basket (cd)

Name	Total weights (in %)	Weights in %	
		Tbilisi 0.5986	Others 0.4014
Emulsion paint	0.0377	0.0294	0.0500
Glass for window	0.0228	0.0178	0.0303
Ceramics materials	0.0407	0.0411	0.0401
"wall paper"	0.0269	0.0211	0.0356
Wall plaster (1 sq. m)	0.0241	0.0200	0.0303
Nail	0.0228	0.0178	0.0303
Hammer	0.0154	0.0120	0.0204
3.2. Fuel and Power	4.9461	2.9607	1.9854
Hot water rent	0.0140	0.0208	0.0038
Electricity rent	2.2147	1.9528	2.6052
Natural gas	0.2030	0.1433	0.2920
Other gas	1.1461	0.8861	1.5339
Oil	1.3683	1.0036	1.9121
4. Household Goods	**2.4943**	**1.4931**	**1.0012**
4.1. Furniture and Fixtures	0.1620	0.0970	0.0650
Kitchen equipment	0.0268	0.0069	0.0566
Wood table	0.0137	0.0031	0.0294
Wardrobe	0.0222	0.0041	0.0492
Chair	0.0209	0.0091	0.0385
Bed	0.0454	0.0638	0.0179
Sofa with two armchairs	0.0330	0.0061	0.0731
4.1.1. Carpets, Other Floor Coverings	*0,0832*	*0,0498*	*0,0334*
Carpet (synthetic)	0.0554	0.0213	0.1064
Ground carpet	0.0278	0.0427	0.0056
4.2. Household Textiles and Repairs	0.2054	0.1230	0.0825
Blanket	0.0272	0.0066	0.0580
Bad sheet	0.0440	0.0263	0.0705
Pillow	0.0130	0.0017	0.0298
Pillow cover	0.0239	0.0143	0.0383
Blanket (other kind)	0.0279	0.0110	0.0530
Towel	0.0243	0.0132	0.0410
Curtain (window)	0.0451	0.0070	0.1019
4.3. Major Household Appliances	0.4045	0.2421	0.1624
Refrigerating machine	0.0711	0.0504	0.1019
Washing machine	0.0797	0.0436	0.1336
Iron	0.0468	0.0379	0.0600
Vacuum cleaner	0.0921	0.0560	0.1459
Coffee-grinder	0.0446	0.0358	0.0577
Hair drier	0.0445	0.0358	0.0575
Bulb	0.0258	0.0045	0.0575

Table A.1. Detail structure of the consumer basket (cd)

Name	Total weights (in %)	Weights in %	
		Tbilisi 0.5986	Others 0.4014
4.4. Tableware and Utensils	0.1751	0.1048	0.0703
Plate	0.0282	0.0200	0.0404
Tea cup	0.0125	0.0084	0.0187
Cup	0.0272	0.0234	0.0329
Knife	0.0548	0.0345	0.0850
Fork	0.0042	0.0015	0.0082
Spoon	0.0042	0.0015	0.0082
Frying pan	0.0043	0.0015	0.0083
Copper	0.0081	0.0036	0.0148
Teapot	0.0315	0.0250	0.0412
4.5. Household operations	1.4641	0.8764	0.5877
Washing soap	0.3553	0.3202	0.4076
Synthetic washing materials (tools)	1.1087	0.9523	1.3421
5. Medical Care	**3.3425**	**2.0008**	**1.3417**
Eyeglasses lens	0.1026	0.0970	0.1109
Antibiotics	0.3120	0.1873	0.4978
Vitamins	0.1847	0.0393	0.4016
Special drugs	0.3504	0.4325	0.2279
Aspirin	0.2705	0.1556	0.4418
Antiseptical drugs	0.0933	0.0500	0.1580
Syringe	0.1026	0.0970	0.1109
Bandage	0.1179	0.1112	0.1279
Plasters	0.1153	0.1126	0.1194
Consultation with therapeutist	1.1796	1.4010	0.8494
Dentist service	0.2274	0.2185	0.2405
Blood "analysis"	0.1145	0.1133	0.1163
X-ray	0.1718	0.1699	0.1745
6. Transportation and Communication	**10.9750**	**6.5696**	**4.4054**
6.1. Personal Transport Equipmemt	2.6642	1.5948	1.0694
Car	0.6902	0.7130	0.6561
Car wheels	0.0942	0.0439	0.1693
Car equipment	0.0638	0.0745	0.0478
Car equipment	0.0638	0.0745	0.0478
Accumulator	0.0506	0.0345	0.0746
Petrol	1.0968	1.2154	0.9199
Diesel	0.4100	0.5209	0.2445
Engine oil	0.0332	0.0321	0.0349
Vulcanization	0.0518	0.0504	0.0538
Rent for driving teaching	0.0581	0.0607	0.0542
Rent for car technical service	0.0518	0.0514	0.0524

Table A.1. Detail structure of the consumer basket (cd)

Name	Total weights (in %)	Weights in %	
		Tbilisi 0.5986	Others 0.4014
6.2. Public Transportation	7.9204	4.7412	3.1793
Urban transport	5.0881	7.8281	1.0019
Taxi	0.2861	0.3248	0.2285
Rural bus	0.6148	0.5066	0.7761
City bus	1.3123	1.6542	0.8025
Rural train	0.1904	0.1653	0.2278
Intercity train	0.1797	0.2206	0.1187
Airplane	0.2491	0.3240	0.1375
6.3. Communication	0.3904	0.2337	0.1567
Post marks	0.0235	0.0306	0.0131
Subscriber rent for phone	0.2164	0.2560	0.1572
Intercity phone	0.1145	0.1230	0.1018
Telegraph	0.0200	0.0295	0.0058
Fax	0.0160	0.0200	0.0100
7. Recreation, Education, and Culture	**3.6299**	**2.1729**	**1.4570**
7.1. Recreational Equipment and Accessories	0.3738	0.2237	0.1500
TV	0.0680	0.0638	0.0743
Radio	0.0037	0.0041	0.0030
Recorder	0.0486	0.0658	0.0229
Photo camera	0.0132	0.0009	0.0316
Photo film	0.0150	0.0034	0.0324
Audio cassette	0.0086	0.0011	0.0197
Video cassette	0.0134	0.0134	0.0134
Battery	0.0283	0.0096	0.0561
Football ball	0.0075	0.0083	0.0063
Toys	0.0085	0.0093	0.0073
Flower	0.1409	0.1562	0.1182
Watch	0.0080	0.0057	0.0113
TV fixing	0.0101	0.0057	0.0166
7.2. Entertainment and Culture	0.2006	0.1201	0.0805
Rent of video cassette	0.0174	0.0063	0.0340
Luna park	0.0649	0.1047	0.0055
Cinema ticket	0.1183	0.1373	0.0899
7.3. Books, Newspapers, Etc.	0.4931	0.2952	0.1979
Daily newspaper	0.2781	0.3042	0.2391
Weekly newspaper	0.0314	0.0342	0.0272
Book (200 300 pages)	0.1836	0.1485	0.2359
7.4. Educational Fees	0.9114	0.5455	0.3658
Payment for school	0.1306	0.1060	0.1673
Payment for kidergarden	0.6066	0.5505	0.6902
Foreign languages cources	0.1742	0.0350	0.3818

Table A.1. Detail structure of the consumer basket (cd)

Name	Total weights (in %)	Weights in %	
		Tbilisi 0.5986	Others 0.4014
7.5. Writing Equipment and Supplies	1.5675	0.9383	0.6292
Notebook	0.4029	0.3590	0.4683
Pen	0.5404	0.6884	0.3196
Pencil	0.6242	0.8185	0.3344
7.8. Vacation Travel	0,0836	0,0500	0,0336
Travels	0.0688	0.0730	0.0625
Hotel	0.0148	0.0124	0.0184
8. Personal Care and Effects	**2.1598**	**1.2929**	**0.8669**
8.1. Personal Care Services	0.8533	0.5108	0.3425
Women haircut	0.1949	0.2012	0.1854
Men haircut	0.1268	0.1008	0.1656
Bath	0.0213	0.0338	0.0027
Manicure	0.0591	0.0673	0.0469
Notary bill	0.1272	0.2108	0.0026
Printing photos	0.1995	0.2518	0.1214
Photocopy	0.1038	0.1639	0.0143
Payment for wedding registration	0.0206	0.0206	0.0206
8.2. Personal Care Goods	1.3065	0.7821	0.5244
Shampoo	0.1283	0.1343	0.1195
Tooth paste	0.1043	0.0827	0.1365
Soap	0.6599	0.5947	0.7572
Dippers	0.0205	0.0204	0.0205
Dippers for ladies	0.0205	0.0204	0.0205
Shaving cream	0.0045	0.0044	0.0045
Deodorant	0.0065	0.0057	0.0077
Perfume	0.0072	0.0077	0.0065
Blades	0.0181	0.0077	0.0336
Tooth brush	0.0450	0.0356	0.0589
Finger-nail "lack"	0.0311	0.0338	0.0271
Pomade	0.0644	0.0673	0.0601
Toilette paper	0.1963	0.2263	0.1517

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